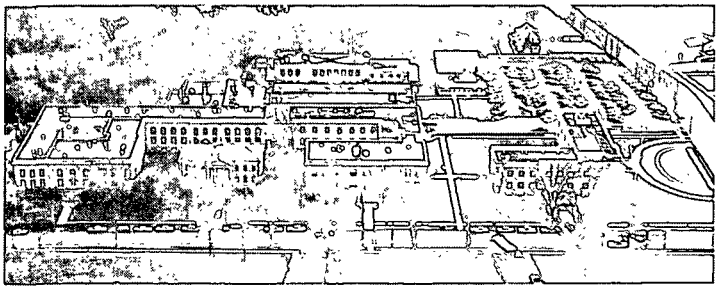


THE INSTITUTE OF PAPER CHEMISTRY, APPLETON, WISCONSIN

CONTINUOUS BASE-LINE STUDY (MODIFIED)
(MILL CORRUGATING MEDIUM DATA FOR JAN-FEB, MAR-APR, MAY-JUN, 1986)

Project 2694-2

Report Sixty-Three

A Progress Report

to

FOURDRINIER KRAFT BOARD GROUP

OF THE

AMERICAN PAPER INSTITUTE

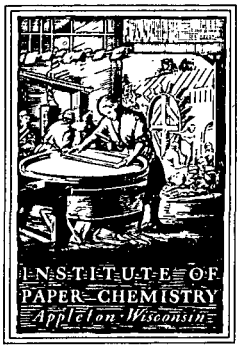
September 1, 1986

NOTICE & DISCLAIMER

The Institute of Paper Chemistry (IPC) has provided a high standard of professional service and has exerted its best efforts within the time and funds available for this project. The information and conclusions are advisory and are intended only for the internal use by any company who may receive this report. Each company must decide for itself the best approach to solving any problems it may have and how, or whether, this reported information should be considered in its approach.

IPC does not recommend particular products, procedures, materials, or services. These are included only in the interest of completeness within a laboratory context and budgetary constraint. Actual products, procedures, materials, and services used may differ and are peculiar to the operations of each company.

In no event shall IPC or its employees and agents have any obligation or liability for damages, including, but not limited to, consequential damages, arising out of or in connection with any company's use of, or inability to use, the reported information. IPC provides no warranty or guaranty of results.



THE INSTITUTE OF PAPER CHEMISTRY
Post Office Box 1039
Appleton, Wisconsin 54912
Phone: 414/734-9251
Telex: 469289

September 1, 1986

Project 2694-2

Dear Sir:

We are enclosing a copy of the following report to the Fourdrinier Kraft Board Group of the American Paper Institute:

Report Sixty-Three, Project 2694-2, a progress report entitled, "Continuous Baseline Study (Modified) of Mill Corrugating Medium Data for Jan.-Feb., March-April, May-June, 1986" dated September 1, 1986

The code identities for paper machines in your company from which data were submitted for evaluation are given on the inside of the front cover of this report.

The FKBG Technical committee has requested that reports for this project be issued semi-annually instead of quarterly. The enclosed semi-annual report includes data for the period of January 1 to June 30, 1986. The next report for the period of July 1 to December 31, 1986 will be issued March 1, 1987.

A new feature in this report is a two-year trend plot of thickness, concora, and ring crush. These trend plots will be updated and included in future reports.

Sincerely,

Roger H. Van Eperen

Roger H. Van Eperen
Research Associate
Paper Materials Division

RHV/les
Enclosure

GEORGIA-PACIFIC CORP.
Your machine is identified
in this report by the
following code.

Toledo Machine #2 D1

BASE-LINE
1st HALF, 1986

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY (MODIFIED)
(MILL CORRUGATING MEDIUM DATA FOR JAN-FEB, MAR-APR, MAY-JUN, 1986)

Project 2694-2

Report Sixty-Three

A Progress Report

to

FOURDRINIER KRAFT BOARD GROUP

OF THE

AMERICAN PAPER INSTITUTE

September 1, 1986

TABLE OF CONTENTS

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

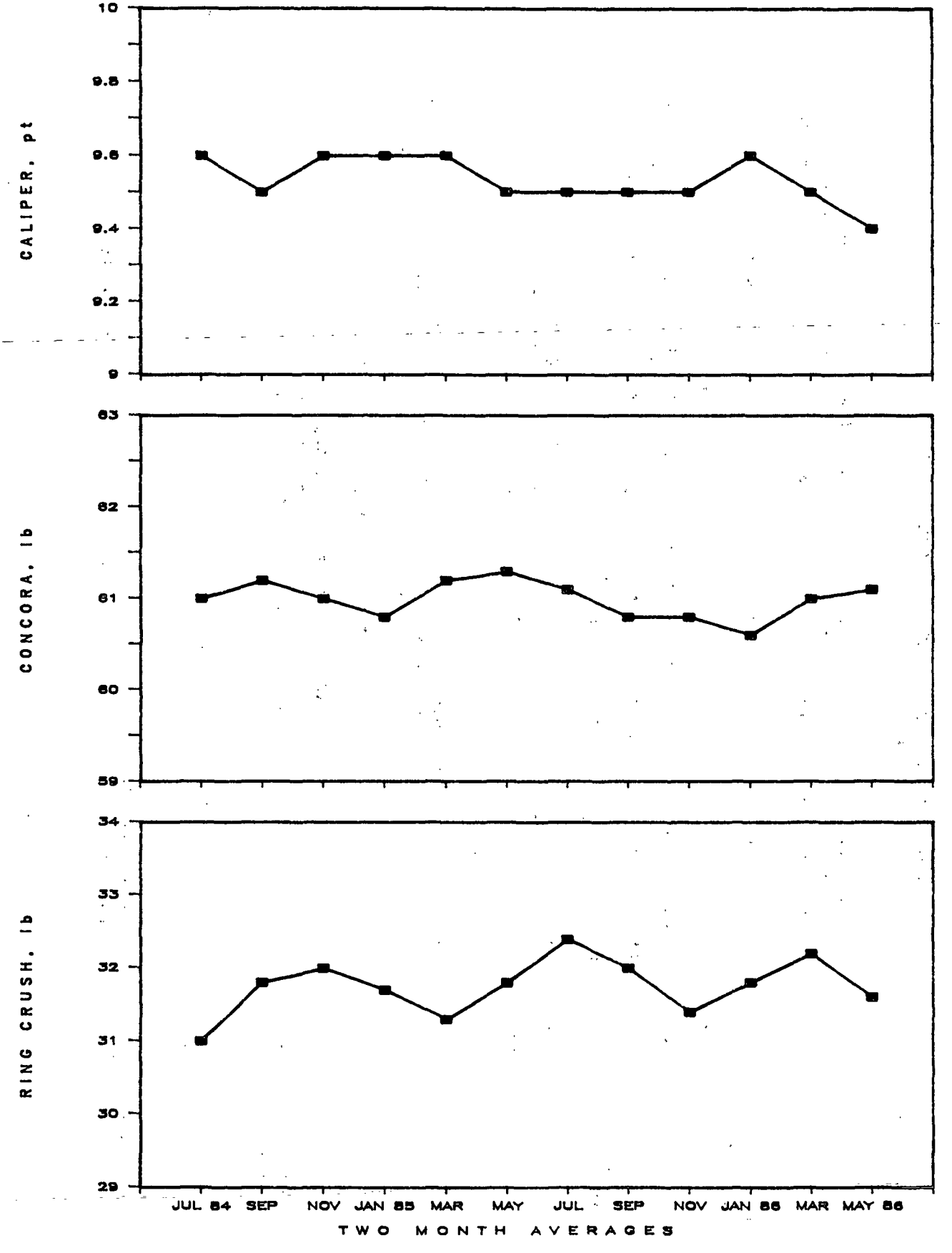
CONTINUOUS BASE-LINE STUDY (MODIFIED)
(MILL CORRUGATING MEDIUM DATA FOR JAN-FEB, MAR-APR, MAY-JUN, 1986)

SUMMARY OF 26-LB CORRUGATING MEDIUM DATA
(NOV-JUN, 1986)

Test		NOV-DEC		JAN-FEB		MAR-APR		MAY-JUN	
		Total	Recycled	Total	Recycled	Total	Recycled	Total	Recycled
Moisture content, %	Max.	9.6	7.0	9.6	7.0	9.5	7.1	9.4	7.0
	Min.	4.4	4.4	4.4	4.4	4.5	4.5	4.2	4.2
	Ave.	6.6(32)	5.8(12)	6.6(32)	5.8(12)	6.7(32)	5.8(12)	6.6(32)	5.7(12)
Adj. basis weight, lb/M sq ft	Max.	27.1	27.1	27.1	27.1	27.1	27.1	27.2	27.2
	Min.	25.3	26.0	25.4	26.2	25.4	25.8	25.4	26.2
	Ave.	26.4(32)	26.6(12)	26.4(32)	26.7(12)	26.4(32)	26.7(12)	26.4(32)	26.7(12)
Caliper, pt.	Max.	10.8	10.8	11.6	11.6	11.2	11.2	10.8	10.8
	Min.	7.7	7.7	7.7	7.7	7.6	7.6	7.6	7.6
	Ave.	9.5(26)	9.4(12)	9.6(26)	9.5(12)	9.5(27)	9.4(12)	9.4(27)	9.3(12)
Concora, lb	Max.	69.4	69.4	69.3	69.3	69.6	69.6	69.5	69.5
	Min.	56.6	56.6	57.0	57.0	55.8	55.8	56.0	56.0
	Ave.	60.9(32)	60.8(12)	60.6(32)	60.8(12)	61.0(32)	60.8(12)	61.1(32)	60.7(12)
CD Ring Crush, lb	Max.	41.5	38.5	43.0	39.0	44.0	39.0	44.0	37.0
	Min.	24.3	24.3	25.3	25.3	23.9	23.9	23.1	23.1
	Ave.	31.4(23)	31.1(7)	31.8(23)	31.0(7)	32.2(24)	31.0(7)	31.6(26)	30.0(9)

Max. and Min. values are current machine averages.
Ave. value is current F.K.B.G. average, number of machines is indicated in parentheses.

TWO-YEAR TREND PLOTS FOR 26-LB MEDIUM



INTRODUCTION

The continuous base-line study (modified) is a compilation of bimonthly averages of mill test data obtained routinely on 26-lb corrugating medium manufactured in the member mills of F.K.B.G. Mill data are included for moisture content, basis weight, caliper, Concora, and C.D. Ring Crush made on the production of individual machines which produced at least 500 tons of this grade weight during a given period.

PRESENTATION OF DATA

For the 26-lb grade weight of corrugating medium referred to earlier, data on conditioning and testing environments, mill test averages for moisture content, adjusted basis weight, caliper, Concora, and C.D. Ring Crush results are compiled in the following tables.

Table Number	Description
I-II-III-IV	Mill Test Averages on 26-Lb Corrugating Medium
V	Data on Conditioning and Testing Environments

The procedure used in calculating cumulative machine averages, machine factors, machine indexes, and F.K.B.G. indexes are described in the Appendix.

It should be explained that the number of machines for which data are compiled in each table for a specified period varies for these reasons: a machine must have (a) produced at least 500 tons of 26-lb corrugating medium during the specified period, or (b) produced 500 tons of 26-lb corrugating medium during <u>any one or more</u> of the 12 months prior to the specified period (so that a cumulative average is available), to be included in a given table.

TABLE I

AVERAGES OF ROUTINE MILL QUALITY CONTROL DATA FOR 26 LB. CORRUGATING MEDIUM

JAN-FEB, 1986

	MOISTURE CONTENT, PERCENT				ADJ. BASIS WT.,*A LB./ M SQ. FT.				CALIPER, PT.				CONCORA TEST LB.			
	MACHINE DATA				MACHINE DATA				MACHINE DATA				MACHINE DATA			
CODE *E	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C
A1	6.1	6.2	98.4	92.4	26.3	26.2	100.4	99.6	10.1	10.1	100.0	106.3	58.0	59.1	98.1	95.1
B1	6.2	6.0	103.3	93.9	26.5	26.7	99.2	100.4					59.0	58.8	100.3	96.7
C1	6.6	6.6	100.0	100.0	26.9	26.8	100.4	101.9		9.0			64.8	64.2	100.9	106.2
D1(R)	7.0	7.2	97.2	106.1	26.3	26.2	100.4	99.6	11.6	11.0	105.4	122.1	63.7	62.8	101.4	104.4
D1	7.1	7.4	95.9	107.6	26.3	26.3	100.0	99.6		0.0			60.0	61.2	98.0	98.4
U1	5.8	6.4	90.6	87.9	26.3	26.4	99.6	99.6	9.3	9.7	95.9	97.9	59.7	61.1	97.7	97.9
X1(R)	6.2	7.0	88.6	93.9	26.7	26.4	101.1	101.1	9.2	9.2	100.0	96.8	69.3	69.4	99.8	113.6
G2	9.6	9.6	100.0	145.4	25.4	25.2	100.8	96.2	10.1	10.0	101.0	106.3	65.1	64.7	100.6	106.7
H2	7.5	7.5	100.0	113.6	26.4	26.4	100.0	100.0	10.3	10.0	103.0	108.4	57.0	57.5	99.1	93.4
I2	7.5	7.4	101.4	113.6	26.6	26.5	100.4	100.8	10.4	10.2	102.0	109.5	57.0	57.8	98.6	93.4
J2	6.0	5.8	103.4	90.9	26.2	26.1	100.4	99.2	9.5	9.6	99.0	100.0	59.9	61.2	97.9	98.2
K2	7.0	6.9	101.4	106.1	26.1	26.3	99.2	98.9					62.5	61.7	101.3	102.4
N2(R)	5.8	5.8	100.0	87.9	26.8	26.6	100.8	101.5	10.7	10.2	104.9	112.6	60.7	61.2	99.2	99.5
O2(R)	4.9	4.8	102.1	74.2	27.0	27.2	99.3	102.3	9.0	9.0	100.0	94.7	57.2	54.8	104.4	93.8
Q2	7.1	7.0	101.4	107.6	26.0	26.1	99.6	98.5					59.0	60.8	97.0	96.7
Z2	7.5	7.2	104.2	113.6	26.3	26.3	100.0	99.6	10.6	10.7	99.1	111.6	59.7	59.7	100.0	97.9
C3	8.6	8.7	98.8	130.3	25.9	25.8	100.4	98.1	10.2	10.6	96.2	107.4	61.1	61.5	99.3	100.2
H3	6.7	7.0	95.7	101.5	26.2	26.3	99.6	99.2	8.8	8.7	101.1	92.6	65.0	67.9	95.7	106.6
J3(R)	6.0	6.0	100.0	90.9	27.0	26.7	101.1	102.3	9.0	9.0	100.0	94.7	58.5	54.2	107.9	95.9
K3(R)	6.2	6.1	101.6	93.9	26.9	26.6	101.1	101.9	8.9	8.9	100.0	93.7	59.5	61.8	96.3	97.5
L3(R)	4.4	4.8	91.7	66.7	27.1	26.8	101.1	102.6	9.4	9.3	101.1	98.9	60.2	59.3	101.5	98.7
N3(R)	5.6	5.3	105.7	84.8	26.4	26.6	99.2	100.0	7.7	7.8	98.7	81.0	59.8	59.8	100.0	98.0
P3(R)	6.6	6.1	108.2	100.0	26.2	25.9	101.2	99.2	8.9	8.8	101.1	93.7	57.0	56.7	100.5	93.4
S3(R)	4.5	4.3	104.6	68.2	26.9	27.0	99.6	101.9	9.5	9.1	104.4	100.0	58.8	59.1	99.5	96.4
U3		6.5				26.1				9.0				66.8		
X3	7.1	7.1	100.0	107.6	26.2	26.2	100.0	99.2	8.4	9.0	93.3	88.4	60.0	60.4	99.3	98.4
Y3(R)	6.0	5.8	103.4	90.9	26.2	26.3	99.6	99.2	9.5	9.5	100.0	100.0	63.7	63.4	100.5	104.4
Z3	8.0	7.0	114.3	121.2	26.3	26.3	100.0	99.6	9.7	9.6	101.0	102.1	59.0	60.2	98.0	96.7
D4(R)	5.8	5.8	100.0	87.9	26.8	26.7	100.4	101.5	10.5	10.4	101.0	110.5	60.6	61.0	99.3	99.3
G4	8.8	8.7	101.1	133.3	26.0	26.0	100.0	98.5	9.5	9.2	103.3	100.0	61.0	61.4	99.3	100.0
H4	7.4	7.6	97.4	112.1	25.9	26.0	99.6	98.1					59.0	60.3	97.8	96.7
K4	6.4	6.6	97.0	97.0	26.2	26.2	100.0	99.2	9.4	9.4	100.0	98.9	62.0	62.9	98.6	101.6
O4	6.8	6.7	101.5	103.0	26.5	26.5	100.0	100.4	9.5	9.1	104.4	100.0	60.0	61.8	97.1	98.4

FKBG DATA

	TOTAL	RECYCLED	TOTAL	RECYCLED	TOTAL	RECYCLED	TOTAL	RECYCLED
CUR. AV	6.6	5.8	26.4	26.7	9.6	9.5	60.6	60.8
CUM. AV	6.6	5.8	26.4	26.6	9.5	9.4	61.0	60.4
IND. *D	100.0	100.0	100.0	100.4	101.0	101.1	99.3	100.7

(*)-- NOTES A, B, C, D, AND E, ARE GIVEN IN APPENDIX.

TABLE II

AVERAGES OF ROUTINE MILL QUALITY CONTROL DATA FOR 26 LB. CORRUGATING MEDIUM

MAR-APR. 1986

	MOISTURE CONTENT, PERCENT				ADJ. BASIS WT.,*A LB./ M SQ. FT.				CALIPER, PT.				CONCORA TEST LB.			
	MACHINE DATA				MACHINE DATA				MACHINE DATA				MACHINE DATA			
CODE *E	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C
A1	6.2	6.2	100.0	93.9	26.2	26.2	100.0	99.2	10.0	10.0	100.0	105.3	58.5	58.8	99.5	95.9
B1	6.0	6.1	98.4	90.9	26.6	26.6	100.0	100.8					59.5	58.8	101.2	97.5
C1	6.6	6.6	100.0	100.0	26.8	26.8	100.0	101.5	8.8	9.0	97.8	92.6	65.8	64.7	101.7	107.9
D1(R)	7.1	7.1	100.0	107.6	26.4	26.2	100.8	100.0	11.2	11.0	101.8	117.9	63.8	63.0	101.3	104.6
O1	7.4	7.4	100.0	112.1	26.2	26.3	99.6	99.2					60.0	61.3	97.9	98.4
U1	6.0	6.3	95.2	90.9	26.3	26.4	99.6	99.6	9.4	9.5	98.9	98.9	60.9	60.8	100.2	99.8
X1(R)	6.5	6.8	95.6	98.5	26.5	26.6	100.4	100.4	9.1	9.2	98.9	95.8	69.6	69.4	100.3	114.1
G2	9.5	9.6	99.0	143.9	25.4	25.2	100.8	96.2	10.1	10.0	101.0	106.3	65.0	64.8	100.3	106.6
H2	7.5	7.5	100.0	113.6	26.4	26.4	100.0	100.0	10.1	10.1	100.0	106.3	57.0	57.4	99.3	93.4
I2	7.5	7.5	100.0	113.6	26.6	26.5	100.4	100.8	10.4	10.3	101.0	109.5	57.0	57.8	98.6	93.4
J2	6.1	5.8	105.2	92.4	26.0	26.2	99.2	98.5	9.4	9.6	97.9	98.9	59.6	60.9	97.9	97.7
K2	7.0	6.9	101.4	106.1	26.1	26.2	99.6	98.9					61.5	61.8	99.5	100.8
N2(R)	5.8	5.8	100.0	87.9	26.9	26.7	100.7	101.9	10.6	10.4	101.9	111.6	60.9	61.2	99.5	99.8
O2(R)	4.5	4.9	91.8	68.2	26.9	27.2	98.9	101.9	9.0	9.0	100.0	94.7	55.8	55.6	100.4	91.5
Q2	7.2	7.1	101.4	109.1	26.1	26.1	100.0	98.9					62.0	60.6	102.3	101.6
Z2	7.2	7.3	98.6	109.1	26.3	26.3	100.0	99.6	10.6	10.6	100.0	111.6	60.4	59.8	101.0	99.0
C3	8.7	8.7	100.0	131.8	25.8	25.8	100.0	97.7	10.2	10.5	97.1	107.4	61.1	61.5	99.3	100.2
H3	7.2	7.0	102.8	109.1	26.3	26.3	100.0	99.6	8.9	8.7	102.3	93.7	67.0	67.5	99.2	109.8
J3(R)	6.0	6.0	100.0	90.9	27.1	26.8	101.1	102.6	9.0	9.0	100.0	94.7	58.2	55.4	105.0	95.4
K3(R)	6.2	6.1	101.6	93.9	27.1	26.6	101.9	102.6	9.0	8.9	101.1	94.7	60.0	61.2	96.0	98.4
L3(R)	4.5	4.8	93.8	68.2	27.0	26.9	100.4	102.3	9.6	9.3	103.2	101.0	60.1	59.5	101.0	98.5
N3(R)	5.7	5.4	105.6	86.4	26.3	26.5	99.2	99.6	7.6	7.8	97.4	80.0	60.3	59.9	100.7	98.8
P3(R)	6.6	6.2	106.4	100.0	25.8	25.9	99.6	97.7	8.0	8.8	90.9	84.2	57.0	56.8	100.4	93.4
S3(R)	4.5	4.5	100.0	68.2	26.9	27.0	99.6	101.9	9.4	9.2	102.2	98.9	59.4	59.0	100.7	97.4
U3		6.6				26.1				9.0				67.3		
X3	7.3	7.1	102.8	110.6	26.1	26.2	99.6	98.9	8.1	8.8	92.0	85.3	61.0	60.3	101.2	100.0
Y3(R)	6.0	5.8	103.4	90.9	26.2	26.2	100.0	99.2	9.5	9.5	100.0	100.0	63.5	63.4	100.2	104.1
Z3	7.6	7.2	105.6	115.2	26.2	26.3	99.6	99.2	9.6	9.6	100.0	101.0	61.5	60.2	102.2	100.8
D4(R)	5.8	5.8	100.0	87.9	26.9	26.7	100.7	101.9	10.5	10.4	101.0	110.5	60.4	61.0	99.0	99.0
G4	8.7	8.7	100.0	131.8	26.0	26.0	100.0	98.5	9.5	9.2	103.3	100.0	61.0	61.3	99.5	100.0
H4	7.6	7.5	101.3	115.2	26.0	26.0	100.0	98.5					60.0	60.2	99.7	98.4
K4	6.5	6.5	100.0	98.5	26.2	26.2	100.0	99.2	9.6	9.3	103.2	101.0	63.0	62.9	100.2	103.3
O4	6.7	6.8	98.5	101.5	26.5	26.5	100.0	100.4	9.1	9.1	100.0	95.8	60.0	61.6	97.4	98.4

FKBG DATA

	TOTAL	RECYCLED	TOTAL	RECYCLED	TOTAL	RECYCLED	TOTAL	RECYCLED
CUR. AV	6.7	5.8	26.4	26.7	9.5	9.4	61.0	60.8
CUM. AV	6.6	5.8	26.4	26.6	9.5	9.4	61.0	60.5
IND. *D	101.5	100.0	100.0	100.4	100.0	100.0	100.0	100.5

(*)-- NOTES A, B, C, D, AND E, ARE GIVEN IN APPENDIX.

TABLE III

AVERAGES OF ROUTINE MILL QUALITY CONTROL DATA FOR 26 LB. CORRUGATING MEDIUM

MAY-JUN, 1986

	MOISTURE CONTENT, PERCENT				ADJ. BASIS WT.,*A LB./ M SQ. FT.				CALIPER, PT.				CONCORA TEST LB.			
	MACHINE DATA				MACHINE DATA				MACHINE DATA				MACHINE DATA			
CODE *E	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C
A1	6.1	6.1	100.0	92.4	26.3	26.2	100.4	99.6	10.0	10.0	100.0	105.3	59.0	58.8	100.3	96.9
B1	6.0	6.1	98.4	90.9	26.6	26.6	100.0	100.8					58.0	59.0	98.3	95.2
C1	6.8	6.6	103.0	103.0	27.0	26.8	100.7	102.3	9.0	8.9	101.1	94.7	66.6	65.1	102.3	109.4
D1(R)	7.0	7.1	98.6	106.1	26.2	26.2	100.0	99.2	10.8	11.0	98.2	113.7	64.5	63.3	101.9	105.9
O1	7.1	7.3	97.3	107.6	26.2	26.3	99.6	99.2					63.0	60.9	103.4	103.4
U1	6.0	6.2	96.8	90.9	26.4	26.3	100.4	100.0	9.4	9.4	100.0	98.9	63.1	60.5	104.3	103.6
X1(R)	6.7	6.8	98.5	101.5	26.5	26.4	100.4	100.4	8.9	9.2	96.7	93.7	69.5	69.5	100.0	114.1
G2	9.4	9.6	97.9	142.4	25.4	25.3	100.4	96.2	9.9	10.0	99.0	104.2	65.3	64.5	101.2	107.2
H2	7.5	7.5	100.0	113.6	26.4	26.4	100.0	100.0	10.0	10.1	99.0	105.3	57.0	57.3	99.5	93.6
I2	7.5	7.5	100.0	113.6	26.5	26.5	100.0	100.4	10.0	10.3	97.1	105.3	58.0	57.6	100.7	95.2
J2	6.0	5.8	103.4	90.9	25.8	26.2	98.5	97.7	9.5	9.6	99.0	100.0	59.0	60.6	97.4	96.9
K2	7.0	6.9	101.4	106.1	26.1	26.2	99.6	98.9					60.0	61.8	97.1	98.5
N2(R)	5.8	5.8	100.0	87.9	26.7	26.7	100.0	101.1	10.4	10.5	99.0	109.5	60.3	61.2	98.5	99.0
O2(R)	4.7	5.0	94.0	71.2	27.0	27.0	100.0	102.3	9.0	9.0	100.0	98.7	56.8	55.9	101.6	93.3
Q2	7.2	7.1	101.4	109.1	26.1	26.1	100.0	98.9					63.0	60.8	103.6	103.4
Z2	7.4	7.3	101.4	112.1	26.2	26.3	99.6	99.2	10.8	10.6	101.9	113.7	60.6	60.0	101.0	99.5
C3	8.8	8.7	101.1	133.3	25.9	25.8	100.4	98.1	10.7	10.4	102.9	112.6	60.0	61.4	97.7	98.5
H3	6.9	7.1	97.2	104.5	26.3	26.3	100.0	99.6	8.8	8.8	100.0	92.6	66.0	67.4	97.9	108.6
J3(R)	6.0	6.0	100.0	90.9	27.1	26.8	101.1	102.6	9.0	9.0	100.0	94.7	59.2	56.3	105.2	97.2
K3(R)	6.2	6.2	100.0	93.9	27.2	26.7	101.9	103.0	9.0	8.9	101.1	94.7	60.5	60.8	99.5	99.3
L3(R)	4.2	4.7	89.4	63.6	27.1	26.9	100.7	102.6	9.2	9.4	97.9	96.8	59.2	59.6	99.3	97.2
N3(R)	5.2	5.4	96.3	78.8	26.4	26.5	99.6	100.0	7.6	7.8	97.4	80.0	60.4	60.0	100.7	99.2
P3(R)	6.3	6.3	100.0	95.4	26.2	26.0	100.8	99.2	8.2	8.7	94.2	86.3	56.0	56.9	98.4	92.0
S3(R)	4.9	4.4	111.4	74.2	26.8	27.0	99.2	101.5	9.1	9.2	98.9	95.8	58.4	59.1	98.8	95.9
U3		6.4				26.1				9.2				66.5		
X3	7.4	7.2	102.8	112.1	26.1	26.2	99.6	98.9	8.3	8.6	96.5	87.4	61.5	60.2	102.2	101.0
Y3(R)	6.0	5.9	101.7	90.9	26.2	26.2	100.0	99.2	9.5	9.5	100.0	100.0	63.1	63.5	99.4	103.6
Z3	7.6	7.4	102.7	115.2	26.3	26.3	100.0	99.6	9.6	9.7	99.0	101.0	64.0	60.3	106.1	105.1
D4(R)	5.8	5.8	100.0	87.9	26.7	26.8	99.6	101.1	10.5	10.4	101.0	110.5	60.4	60.8	99.3	99.2
G4	8.7	8.7	100.0	131.8	26.1	26.0	100.4	98.9	9.6	9.2	104.3	101.0	62.0	61.2	101.3	101.8
H4	7.6	7.4	102.7	115.2	26.0	26.0	100.0	98.5					62.0	60.0	103.3	101.8
K4	6.4	6.5	98.5	97.0	26.2	26.2	100.0	99.2	9.1	9.3	97.8	95.8	60.0	62.8	95.5	98.5
O4	6.9	6.8	101.5	104.5	26.4	26.5	99.6	100.0	9.3	9.1	102.2	97.9	59.0	61.1	96.6	96.9

FKBG DATA

	TOTAL	RECYCLED	TOTAL	RECYCLED	TOTAL	RECYCLED	TOTAL	RECYCLED
CUR. AV	6.6	5.7	26.4	26.7	9.4	9.3	61.1	60.7
CUM. AV	6.6	5.8	26.4	26.6	9.5	9.4	60.9	60.6
IND. *D	100.0	98.3	100.0	100.4	98.9	98.9	100.3	100.2

(*)-- NOTES A, B, C, D, AND E, ARE GIVEN IN APPENDIX.

TABLE IV

AVERAGES OF ROUTINE MILL QUALITY CONTROL DATA FOR 26 LB. CORRUGATING MEDIUM

RING COMPRESSION, LBS.

	JAN-FEB, 1986				MAR-APR, 1986				MAY-JUN, 1986			
	MACHINE DATA				MACHINE DATA				MACHINE DATA			
	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C	CUR. AV.	CUM. AV.	FACT. *B	IND. *C
A1		30.7			33.0	30.2	109.3	103.8	30.0	31.2	96.2	94.0
B1	35.0	32.2	108.7	110.1	33.4	32.3	103.4	105.0	30.0	32.5	92.3	94.0
C1	31.5	30.5	103.3	99.0	32.5	30.7	105.9	102.2	33.0	31.0	106.4	103.4
D1(R)	30.0	29.9	100.3	94.3	31.0	30.2	102.6	97.5	31.0	30.2	102.6	97.2
D1	26.0	30.2	86.1	81.8	27.0	29.9	90.3	84.9	29.0	29.8	97.3	90.9
U1												
X1(R)												
G2	29.7	28.5	104.2	93.4	29.9	28.6	104.5	94.0	29.9	28.6	104.5	93.7
H2	27.0	28.1	96.1	84.9	30.0	27.9	107.5	94.3	30.0	28.2	106.4	94.0
I2	30.0	29.7	101.0	94.3	30.0	29.5	101.7	94.3	30.0	29.7	101.0	94.0
J2	30.4	33.3	91.3	95.6	33.9	32.9	103.0	106.6	34.6	33.1	104.5	108.5
K2	28.5	29.2	97.6	89.6	27.7	28.9	95.8	87.1	26.5	28.4	93.3	83.1
M2(R)												
O2(R)		25.8				26.2			27.9	25.6	109.0	87.5
Q2	26.0	24.5	106.1	81.8	27.0	24.8	108.9	84.9	26.0	25.2	103.2	81.5
Z2	41.2	38.6	106.7	129.6	42.2	39.4	107.1	132.7	41.4	40.2	103.0	129.8
C3	36.6	35.2	104.0	115.1	34.3	35.1	97.7	107.9	36.1	34.9	103.4	113.2
H3												
J3(R)		25.4				25.0			30.0	24.0	125.0	94.0
K3(R)	36.0	38.1	94.5	113.2	38.0	37.7	100.8	119.5	35.5	37.7	94.2	111.3
L3(R)	25.8	25.4	101.6	81.1	24.5	25.5	96.1	77.0	23.6	25.0	94.4	74.0
M3(R)	27.7	29.2	94.9	87.1	28.2	29.0	97.2	88.7	28.4	28.9	98.3	89.0
P3(R)	39.0	41.4	94.2	122.6	39.0	40.4	96.5	122.6	37.0	40.5	91.4	116.0
S3(R)	25.3	25.3	100.0	79.6	23.9	25.0	95.6	75.2	23.1	24.7	93.5	72.4
U3												
X3	43.0	41.5	103.6	135.2	44.0	42.2	104.3	138.4	44.0	42.4	103.8	137.9
V3(R)	33.5	31.8	105.3	105.3	32.8	32.3	101.5	103.1	33.5	32.3	103.7	105.0
Z3	27.5	29.7	92.6	86.5	29.5	29.1	101.4	92.8	29.0	29.2	99.3	90.9
D4(R)												
G4	40.0	40.2	99.5	125.8	39.0	40.7	95.8	122.6	40.0	40.9	97.8	125.4
H4	32.0	28.3	113.1	100.6	32.0	29.1	110.0	100.6	30.0	29.8	100.7	94.0
K4		33.4				33.7				36.8		
O4	31.0	33.2	93.4	97.5	31.0	32.9	94.2	97.5	32.0	32.5	98.5	100.3
FKBG DATA												
	TOTAL		RECYCLED		TOTAL		RECYCLED		TOTAL		RECYCLED	
CUR. AV	31.8		31.0		32.2		31.0		31.6		30.0	
CUM. AV	31.8		31.0		31.8		31.0		31.9		31.1	
IND. *D	100.0		100.0		101.2		100.0		99.0		96.5	

(*)-- NOTES A, B, C, D, AND E, ARE GIVEN IN APPENDIX.

TABLE V

DATA ON CONDITIONING AND TESTING ENVIRONMENTS

JAN-FEB, MAR-APR, MAY-JUNE, 1986

Code	Conditioning Environment: Are Quality Samples Conditioned Before Testing?	Procedure: Time	Temp., °F	RH, %	Testing Environment: Are Quality Samples Tested Under Controlled Conditions of Temperature & Humidity?
A1	No	--	--	--	No
B1	No	--	--	--	Yes: 72 ± 5°F; 50 ± 5% RH
C1	No	--	--	--	No
D1	No	--	--	--	Yes: 70 ± 2°F; 50 ± 2% RH
O1	No	--	--	--	Yes: 73 ± 2°F; 50 ± 2% RH
U1	No	--	--	--	Yes: 72 ± 2°F; 50 ± 2% RH
X1	No	--	--	--	Yes: 72 ± 1°F; 50 ± 1% RH
G2	No	--	--	--	Yes: 72 ± 2°F; 50 ± 2% RH
H2	No	--	--	--	Yes: 72 ± 2°F; 50 ± 2% RH
I2	No	--	--	--	Yes: 72 ± 2°F; 50 ± 5% RH
J2	No	--	--	--	Yes: 73 ± 2°F; 50 ± 2% RH
K2	No	--	--	--	Yes: 72 ± 5°F; 50 ± 5% RH
N2	No	--	--		Yes: 72 ± 4°F; 50 ± 5% RH
O2	No	--	--	--	No
Q2	No	--	--	--	Yes: 73 ± 2°F; 50 ± 2% RH
Z2	No	--	--	--	Yes: 70 ± 2°F; 50 ± 2% RH
C3	No	--	--	--	Yes: 72 ± 3°F; 50 ± 2% RH
H3	No	--	--	--	Yes: 73 ± 2°F; 50 ± 2% RH
J3	No	--	--	--	No
K3	No	--	--	--	No
L3	Yes	--	--	--	Yes: 70 ± 1°F; 50 ± 2% RH
N3	No	--	--	--	Yes: 75 ± 2°F; 50 ± 5% RH
P3	No	--	--	--	Yes: 72 ± 3-5°F; 50 ± 2% RH
S3	Yes	--	--	--	Yes: 70 ± 1°F; 50 ± 2% RH
U3	No data was submitted for this period				
X3	No	--	--	--	Yes: 72 ± 2°F; 50 ± 1% RH
Y3	No	--	--	--	Yes: 72 ± 2°F; 50 ± 3% RH
Z3	No	--	--	--	No
D4	No	--	--	--	Yes: 72 ± 4°F; 50 ± 5% RH
G4	No	--	--	--	Yes: 70 ± 2°F; 50 ± 10% RH
H4	No	--	--	--	Yes: 73 ± 2°F; 50 ± 2% RH
K4	No	--	--	--	Yes: 73°F; 50% RH
O4	No	--	--	--	No

THE INSTITUTE OF PAPER CHEMISTRY

Roger H. Van Eperen
Research Associate
Paper Materials Division

Approved by

Gary A. Baum
Director
Paper Materials Division

APPENDIX

NOTES A, B, C, D, AND E, USED IN TABULATIONS OF MILL DATA

Notes A, B, C, D, and E, used in the tables of mill data are given below; these notes define the procedure used in calculating adjusted basis weight, machine factor, machine index, and F.K.B.G. index. It should be stressed that each formula is applicable only to a specific physical property of corrugating medium.

Note A: Adjusted basis weight (ABW) = reported weight (RBW) adjusted to moisture content of 7.8%:

$$ABW = RBW \left[\frac{(100 - \text{reported moisture content, \%})}{(100 - 7.8)}\right]$$

Note B: Machine factor (%) $= \left[\frac{\text{Current machine average}}{\text{Cumulative machine average}}\right] \cdot 100$ where

$$\text{Cumulative machine average} = \sum \frac{\text{CMA's}^a \text{ for previous 6 periods excluding CMA for current period}}{6}$$

Note C: Machine index (%) $= \left[\frac{\text{Current machine average}}{\text{Cumulative F.K.B.G. total average}}\right] \cdot 100$ where

$$\text{Cumulative F.K.B.G. average} = \sum \frac{\text{CFKBGA's}^b \text{ for previous 6 periods excluding CFKBGA for current period}}{6}$$

Note D: F.K.B.G. index (%) $= \left[\frac{\text{Current F.K.B.G. average}}{\text{Cumulative F.K.B.G. average}}\right] \cdot 100$ where

$$\text{Current F.K.B.G. average} = \sum \frac{\text{CMA's}^a \text{ for current period for all machines}}{\text{Number of machines}}$$

Note E: (R) - Indicates a medium manufactured from recylced fibers.

---

[a]CMA = current machine average for a specific physical property of 26-lb corrugating medium obtained during a given period on a specific machine.

[b]CFKBGA = current F.K.B.G. average for a specific physical property of 26-lb corrugating medium obtained during a given period.